Appl. No. : **10/797,510**
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AMENDMENTS TO THE CLAIM

1. **(Currently Amended)** A device for hemodialysis, comprising:

a cylindrical housing having a housing wall;

a first cylindrical rotor having a first wall comprising a dialysis membrane, wherein said first cylindrical rotor is disposed coaxially within said housing and adapted to rotate therein, such that a first coaxial gap exists between the dialysis membrane and the housing wall;

a second cylindrical rotor having a second wall, wherein said second cylindrical rotor is disposed coaxially within said first cylindrical rotor and adapted to rotate therein, such that a second coaxial gap exists between the first and second walls;

a first inlet port in the housing wall for ~~conducing~~ conducting blood into the first coaxial gap and a first outlet port in the housing wall for conducting dialyzed blood out of the first coaxial gap;

a second inlet port in said housing for conducting dialysis fluid into the second coaxial gap and a second outlet port in said housing for ~~conducing~~ conducting dialysate out of the second coaxial gap;

a first rotational drive means for rotating the first cylindrical rotor within said housing; and

a second rotational drive means for rotating the second cylindrical rotor within said housing.

2. **(Original)** The device of Claim 1, wherein the first rotational drive means comprises a spinner magnet mounted to the first cylindrical rotor, and an external rotating magnetic field.

3 **(Original)** The device of Claim 1, wherein the second rotational drive means comprises a spinner magnet mounted to the second cylindrical rotor, and an external rotating magnetic field.

4. **(Original)** The device of Claim 1, wherein the first cylindrical rotor rotates with sufficient speed to create Taylor vorticity in the blood in the first coaxial gap.

5. **(Original)** The device of Claim 1, wherein the second cylindrical rotor rotates with sufficient speed to create Taylor vorticity in the dialysate in the second coaxial gap.

Claims 6 through 14 (Canceled)

15. **(Currently Amended)** ~~The device of Claim 13~~ The device of Claim 1, wherein the second wall is impermeable to dialysis fluid.

Claim 16 (Canceled)

17. **(Currently Amended)** ~~The device of Claim 13~~ The device of Claim 1, wherein the second gap has a cross-section having a variable width.

18. **(Currently Amended)** ~~The device of Claim 13~~ The device of Claim 1, wherein the second wall has a generally circular cross-section.

Claims 19 through 28 (Canceled)

29. **(Currently Amended)** A device to facilitate mass transfer from a first fluid, comprising:

a housing having a housing wall;

a first rotor having a first wall comprising a filtration membrane, wherein said first rotor is disposed within said housing and adapted to rotate therein, such that a first gap exists between the filtration membrane and the housing wall;

a second rotor having a second wall, wherein said second rotor is disposed within said first rotor and adapted to rotate therein, such that a second gap exists between the first and second walls;

a first inlet port in the housing wall for ~~conducing~~ conducting the first fluid into the first gap and a first outlet port in the housing wall for conducting filtered first fluid out of the first gap;

a first rotational drive means for rotating the first rotor within said housing; and

a second rotational drive means for rotating the second rotor within said housing.

30. **(Currently Amended)** The device of Claim 29, further comprising:

~~a second fluid for receiving mass transferred from the first fluid; and~~

a second inlet port in said housing for conducting ~~the~~ a second fluid into the second gap and a second outlet port for ~~conducing~~ conducting the second fluid out of the second gap.

31. **(Original)** The device of Claim 29, wherein the first rotor rotates at a speed sufficient to create Taylor vorticity in the first gap.

32. **(Original)** The device of Claim 29, wherein the second rotor rotates at a speed sufficient to create Taylor vorticity in the second gap.

33. **(Original)** The device of Claim 29, wherein the second wall comprises a second filtration membrane.

34. **(Original)** The device of Claim 29, wherein the second wall is impermeable to fluid.

35. **(Original)** The device of Claim 29, wherein the first gap has a cross-section having a variable width.

36. **(Original)** The device of Claim 29, wherein the second gap has a cross-section having a variable width.

37. **(Original)** The device of Claim 29, wherein the first and second walls have generally circular cross-sections.

38. **(Original)** The device of Claim 37, wherein the first and second rotors are disposed coaxially within said outer housing.

39. **(Original)** The device of Claim 37, wherein the first and second rotors are not disposed coaxially within said outer housing.

Claims 40 through 60 (Canceled)